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From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:  
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PCT

WRITTEN OPINION

(PCT Rule 66)

Applicant's or agent's file reference 3402.1010002		Date of Mailing (day/month/year) <b>26 OCT 2004</b>
REPLY DUE within 1 months/days from the above date of mailing		
International application No. PCT/US03/36258	International filing date (day/month/year) 13 November 2003 (13.11.2003)	Priority date (day/month/year) 13 November 2002 (13.11.2002)
International Patent Classification (IPC) or both national classification and IPC IPC(7): B01J 8/04, 8/02; C01B 3/34, 3/38, 3/40 and US Cl.: 422/177, 180, 211, 222; 423/650, 651, 652		
Applicant NUVERA FUEL CELLS, INC.		

FOREIGN DOCKETING  
NOM 21 NO 2004  
SRU 25 NO 2004  
MAF 26 NO 2004  
Completed By: JAT

- This written opinion is the first (first, etc.) drawn by this International Preliminary Examining Authority.
- This opinion contains indications relating to the following items:
  - ☒ Basis of the opinion
  - ☐ Priority
  - ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - ☐ Lack of unity of invention
  - ☒ Reasoned statement under Rule 66.2 (a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - ☐ Certain documents cited
  - ☒ Certain defects in the international application
  - ☐ Certain observations on the international application
- The applicant is hereby **invited to reply** to this opinion.

**When?** See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension. See rule 66.2(d).~~

**How?** By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

**Also** For an additional opportunity to submit amendments, see Rule 66.4.  
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 *bis*.  
For an informal communication with the examiner, see Rule 66.6

**If no reply is filed**, the international preliminary examination report will be established on the basis of this opinion.
- The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 13 March 2005 (13.03.2005)

Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Hien Tran Telephone No. (571) 272-1700	DEBORAH A. THOMAS PARALEGAL SPECIALIST <del>GROUP 1390</del> <i>JAT</i>
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# WRITTEN OPINION

International application No. \_\_\_\_\_

PCT/US03/36258

## I. Basis of the opinion

### 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed
- ☒ the description:  
 pages 1-11, as originally filed  
 pages NONE, filed with the demand  
 pages NONE, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
 pages 12 and 13, as originally filed  
 pages NONE, as amended (together with any statement) under Article 19  
 pages NONE, filed with the demand  
 pages NONE, filed with the letter of \_\_\_\_\_
- ☒ the drawings:  
 pages 1-4, as originally filed  
 pages NONE, filed with the demand  
 pages NONE, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages NONE, as originally filed  
 pages NONE, filed with the demand  
 pages NONE, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages NONE
- ☒ the claims, Nos. NONE
- ☒ the drawings, sheets/fig NONE

### 5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed."

WRITTEN OPINION

International application No.  
PCT/US03/36258

**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. STATEMENT**

Novelty (N)	Claims <u>4, 11-12</u>	YES
	Claims <u>1-3, 5-10</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-12</u>	NO
Industrial Applicability (IA)	Claims <u>1-12</u>	YES
	Claims <u>NONE</u>	NO

**2. CITATIONS AND EXPLANATIONS**

Please See Continuation Sheet

**WRITTEN OPINION**

International application No.

PCT/US03/36258

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

The drawings are objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or content thereof:  
In Figs. 4A-4B it is unclear as to what "26" stands for.

The description is objected to as containing the following defect(s) under PCT Rule 66.2(a)(iii) in the form or contents thereof:  
On page 11, line 15 --or first housing-- should be inserted before "28" (note line 13); in line 16 --or second housing-- should be inserted before "30" (note line 13).

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

**TIME LIMIT:**

The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Examination Report.

**V. 2. Citations and Explanations:**

Claims 1-3, 5-8 lack novelty under PCT Article 33(2) as being anticipated by Le Gal et al (5,797,737).

Le Gal et al discloses a catalyst system and a method for providing a fast startup comprising a first, upstream portion 4 having at least a majority of a first catalyst having a first lightoff temperature, and a second, downstream portion 6 having at least a majority of a second catalyst having a second, higher lightoff temperature, wherein the difference between the first and second lightoff temperatures is at least about 25 °C.

Instant claims 1-3, 5-8 structurally read on the apparatus of Le Gal et al.

Claim 4 lacks an inventive step under PCT Article 33(3) as being obvious over Le Gal et al (5,797,737).

The apparatus of Le Gal et al is substantially the same as that of the instant claim, but fails to disclose the specific mixture for each catalyst.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select an appropriate material for each catalyst, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Claims 1-3, 5-7 lack novelty under PCT Article 33(2) as being anticipated by Buswell et al (5,464,606).

Buswell et al discloses a catalyst system comprising a first, upstream portion having at least a majority of a first catalyst having a first lightoff temperature, and a second, downstream portion having at least a majority of a second catalyst having a second, higher lightoff temperature, wherein the difference between the first and second lightoff temperatures is at least about 25 °C (col. 3, lines 50-63; col. 4, lines 5-11, 34-36; Figs. 2-9).

Instant claims 1-3, 5-7 structurally read on the apparatus of Buswell et al.

Claim 4 lacks an inventive step under PCT Article 33(3) as being obvious over Buswell et al (5,464,606).

The apparatus of Buswell et al is substantially the same as that of the instant claim, but fails to disclose the specific mixture for each catalyst.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select an appropriate material for each catalyst, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Claims 1-3, 5-10 lack novelty under PCT Article 33(2) as being anticipated by Clawson et al (6,126,908).

Clawson et al discloses a catalyst system and a method for providing a fast startup comprising a first, upstream portion having at least a majority of a first catalyst having a first lightoff temperature, and a second, downstream portion having at least a majority of a second catalyst having a second, higher lightoff temperature, wherein the difference between the first and second lightoff temperatures is at least

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

about 25 °C (col. 8, line 59 to col. 11, line 40; Fig. 3).

Instant claims 1-3, 5-10 structurally read on the apparatus of Clawson et al.

Claims 4, 11-12 lack an inventive step under PCT Article 33(3) as being obvious over Clawson et al (6,126,908).

The apparatus of Clawson et al is substantially the same as that of the instant claim, but fails to disclose the specific mixture for each catalyst.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select an appropriate material for each catalyst, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

With respect to claims 11-12, at the time of the invention was made, it would have been obvious to one skilled in the art to select an appropriate time to add steam since such is no more than a design choice, and well within the knowledge of one skilled in the art.

Claims 1-12 meet the criteria set out in PCT Article 33(4), and thus meet industrial applicability because the subject matter claimed can be made or used in industry.

----- NEW CITATIONS -----